

What is claimed is:

1. A method of updating a mobile device, comprising:

receiving at a mobile device resource requirements data for an update from an update management computing device;

5 determining whether the mobile device has associated update resources to meet the resource requirements;

allocating update resources to the mobile device if the mobile device does not have associated update resources to meet the resource requirements;

10 transmitting from the mobile device to the update management computing device update request data requesting update data; and

receiving at the mobile device the update data from the update management computing device in response to the transmitted update request data.

2. The method of claim 1, wherein determining whether the mobile device has associated update resources to meet the resource requirements comprises determining whether  
15 the mobile device has a minimum amount of available memory in a mobile device memory.

3. The method of claim 2, wherein allocating update resources to the mobile device if the mobile device does not have associated update resources to meet the resource requirements comprises:

20 upon determining that the mobile device does not have the minimum amount of available memory, identifying stored mobile device data stored in the mobile device memory that may be purged to make available the minimum amount of available memory in the mobile device memory.

4. The method of claim 3, wherein allocating update resources to the mobile device if the mobile device does not have associated update resources to meet the resource requirements further comprises:

5 upon identifying stored mobile device data stored in the mobile device memory that may be purged to make available the minimum amount of available memory in the mobile device memory:

determining whether the identified stored mobile device data is stored on a remote storage device operable to communicate with the mobile device over a communication network;

10 upon determining that the identified stored mobile device data is not stored on the remote storage device, transmitting the identified stored mobile device data to the remote storage device for storage; and

purging the identified stored mobile device data from the mobile device memory.

5. The method of claim 4, further comprising:

updating the mobile device with the received update data;

15 transmitting a request from the mobile device to the remote storage device for transmission of the identified stored mobile device data from the remote storage device to the mobile device;

receiving the identified stored mobile device data from the remote storage device in response to the transmitted request; and

20 storing the identified stored mobile device data in the mobile device memory.

6. The method of claim 5, wherein the remote storage device comprises the update management computing device.

7. The method of claim 5, wherein updating the mobile device with the received update data comprises:

determining a baseline mobile device configuration;

5 creating an updated mobile device configuration within the available memory of the mobile device; and

maintaining the baseline mobile device configuration after creating the updated mobile device configuration within the available memory of the mobile device.

8. The method of claim 7, wherein updating the mobile device with the received update data further comprises:

10 determining whether to accept the updated mobile device configuration;

upon determining to accept the updated mobile device configuration, accepting the updated mobile device configuration as the mobile device baseline; and

upon determining not to accept the updated mobile device configuration, reverting to the baseline mobile device configuration.

15 9. The method of claim 7, wherein updating the mobile device with the received update data further comprises:

storing an update resource in the mobile device memory, the update resource specifying the baseline mobile device configuration and updated mobile device configuration;

20 determining whether an update resource is stored in the mobile device memory during an initialization of the mobile device;

upon determining that the update resource is stored in the mobile device memory during an initialization of the mobile device, prompting a mobile device user to select one of the baseline mobile device configuration or updated mobile device configuration; and

accepting the updated mobile device configuration or reverting to the baseline mobile device configuration based on the user selection.

10. The method of claim 1, wherein determining whether the mobile device has associated update resources to meet the resource requirements comprises determining whether  
5 the mobile device has a minimum amount of computational resources to execute update computations on stored mobile device data stored in the mobile device memory to create updated mobile device data.

11. The method of claim 10, wherein allocating update resources to the mobile device if the mobile device does not have associated update resources to meet the resource requirements  
10 comprises:

upon determining that the mobile device does not have the minimum amount of computational resources, identifying stored mobile device data stored in the mobile device memory for which update computations are to be executed; and

transmitting the identified stored mobile device data to the update management  
15 computing device for execution of the update computations to create the updated mobile device data; and

purging the identified stored mobile device data from the mobile device memory.

12. The method of claim 11, further comprising:

updating the mobile device with the received update data;

20 transmitting a request from the mobile device to the update management computing device for transmission of the updated mobile device data from the update management computing device to the mobile device;

receiving the updated mobile device data from the update management computing device  
in response to the transmitted request; and

storing the updated stored mobile device data in the mobile device memory.

13. The method of claim 1, wherein updating the mobile device with the received  
5 update data comprises:

determining a baseline mobile device configuration;

creating an updated mobile device configuration within the available memory of the  
mobile device; and

maintaining the baseline mobile device configuration after creating the updated mobile  
10 device configuration within the available memory of the mobile device.

14. The method of claim 13, wherein updating the mobile device with the received  
update data further comprises:

determining whether to accept the updated mobile device configuration;

upon determining to accept the updated mobile device configuration, accepting the  
15 updated mobile device configuration as the mobile device baseline; and

upon determining not to accept the updated mobile device configuration, reverting to the  
baseline mobile device configuration.

15. The method of claim 13, wherein updating the mobile device with the received  
update data further comprises:

20 storing an update resource in the mobile device memory, the update resource specifying  
the baseline mobile device configuration and updated mobile device configuration;

determining whether an update resource is stored in the mobile device memory during an  
initialization of the mobile device;

upon determining that the update resource is stored in the mobile device memory during an initialization of the mobile device, prompting a mobile device user to select one of the baseline mobile device configuration or updated mobile device configuration; and

accepting the updated mobile device configuration or reverting to the baseline mobile  
5 device configuration based on the user selection.

16. The method of claim 13, wherein updating the mobile device with the received update data further comprises copy-on-write of stored baseline configuration data stored into the available memory of the mobile device.

17. Executable program code stored in a computer readable medium and comprising  
10 instructions operable to cause a mobile device to perform the method of claim 1 when executed on the mobile device.

18. A method of updating a mobile device, comprising:

transmitting from an update management computing device to a mobile device resource requirements data for an update;

15 receiving at the update management computing device an update request transmitted from the mobile device in response to the transmitted resource requirements data; and

transmitting from the update management computing device to the mobile device the update data in response to the update request.

19. The method of claim 18, further comprising:

20 receiving stored mobile device data transmitted from the mobile device;

storing the stored mobile device data in the update management computing device;

receiving a stored mobile device data request transmitted from the mobile device; and

transmitting from the update management computing device to the mobile device the stored mobile device data.

20. The method of claim 18, further comprising:

receiving stored mobile device data transmitted from the mobile device;

5 storing the stored mobile device data in the update management computing device; and

execution update computations to create updated mobile device data in the update management computing device.

21. The method of claim 20, further comprising:

receiving an updated mobile device data request transmitted from the mobile device; and

10 transmitting from the update management computing device to the mobile device the updated mobile device data.

22. The method of claim 20, further comprising:

receiving a stored mobile device data request transmitted from the mobile device; and

15 transmitting from the update management computing device to the mobile device the stored mobile device data.

23. Executable program code stored in a computer readable medium and comprising instructions operable to cause a computer device to perform the method of claim 18 when executed on the computer device.

24. A system for updating a mobile device over a communication network,  
20 comprising:

a mobile communication device comprising a processing subsystem, a memory subsystem, and a communication subsystem, the processing subsystem coupled to the memory subsystem and communication subsystem and operable to store and retrieve data in the memory

subsystem, to execute instructions stored in the memory subsystem, and to cause the communication subsystem to transmit and receive data over the communication network; and

mobile device update management and allocation program code comprising instructions executable by the processing subsystem and stored in the memory subsystem, the instructions operable to cause the processing subsystem to receive resource requirements data for an update transmitted over the communication network, determine whether the mobile device has associated update resources to meet the resource requirements, allocate update resources in the mobile device if the mobile device does not have associated update resources to meet the resource requirements, and transmit over the communication network update request data requesting update data from an update management computing device.

25. The system of claim 24, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to determine whether the mobile device has a minimum amount of available memory in the mobile device memory subsystem, and upon determining that the mobile device does not have the minimum amount of available memory, identify stored mobile device data stored in the memory subsystem that may be purged to make available the minimum amount of available memory.

26. The system of claim 25, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to determine whether the identified stored mobile device data is stored on a remote storage device operable to communicate with the mobile device over a communication network,



and upon determining that the identified stored mobile device data is not stored on the remote storage device, transmit the identified stored mobile device data to the remote storage device for storage and purge the identified stored mobile device data from the mobile device memory after the transmission.

5           27.     The system of claim 26, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to update the mobile device with the received update data, transmit a request to the remote storage device for transmission of the identified stored mobile device data from the  
10 remote storage device to the mobile device, receive identified stored mobile device data from the remote storage device in response to the transmitted request, and store the identified stored mobile device data in the mobile device memory subsystem.

          28.     The system of claim 27, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem  
15 and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to determine a baseline mobile device configuration, create an updated mobile device configuration within the available memory of the memory subsystem, and maintain the baseline mobile device configuration after creating the updated mobile device configuration within the available memory of the memory subsystem.

20           29.     The system of claim 28, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to determine whether to accept the updated mobile device configuration, and upon

determining to accept the updated mobile device configuration, accept the updated mobile device configuration as the mobile device baseline, and upon determining not to accept the updated mobile device configuration, revert to the baseline mobile device configuration.

30. The system of claim 29, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to store an update resource in the mobile device memory subsystem, the update resource specifying the baseline mobile device configuration and updated mobile device configuration, determine whether an update resource is stored in the mobile device memory during an initialization of the mobile device, upon determining that the update resource is stored in the mobile device memory subsystem during an initialization of the mobile device, prompt a mobile device user to select one of the baseline mobile device configuration or the updated mobile device configuration, and accept the updated mobile device configuration or revert to the baseline mobile device configuration based on the user selection.

31. The system of claim 24, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to determine whether the mobile device has a minimum amount of computational resources to execute update computations on stored mobile device data stored in the mobile device memory subsystem to create updated mobile device data, and upon determining that the mobile device does not have the minimum amount of computational resources, identify stored mobile device data stored in the mobile device memory subsystem for which update computations are to be executed, and transmit the identified stored mobile device data to the

update management computing device for execution of the update computations to create the updated mobile device data.

32. The system of claim 31, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to update the mobile device with the received update data, transmit a request to the update management computing device for transmission of the updated mobile device data from the update management computing device to the mobile device, receive the updated mobile device data from the update management computing device in response to the transmitted request, and store the updated mobile device data in the mobile device memory subsystem.

33. The system of claim 24, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to determine a baseline mobile device configuration, create an updated mobile device configuration within the available memory of the memory subsystem, and maintain the baseline mobile device configuration after creating the updated mobile device configuration within the available memory of the memory subsystem.

34. The system of claim 33, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to determine whether to accept the updated mobile device configuration, and upon determining to accept the updated mobile device configuration, accept the updated mobile device

configuration as the mobile device baseline, and upon determining not to accept the updated mobile device configuration, revert to the baseline mobile device configuration.

35. The system of claim 34, wherein the mobile device update management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to store an update resource in the mobile device memory subsystem, the update resource specifying the baseline mobile device configuration and updated mobile device configuration, determine whether an update resource is stored in the mobile device memory during an initialization of the mobile device, upon determining that the update resource is stored in the mobile device memory subsystem during an initialization of the mobile device, prompt a mobile device user to select one of the baseline mobile device configuration or the updated mobile device configuration, and accept the updated mobile device configuration or revert to the baseline mobile device configuration based on the user selection.

36. A system for updating a mobile device over a communication network, comprising:

an update management server comprising a processing subsystem, a memory subsystem, and a communication subsystem, the processing subsystem coupled to the memory subsystem and communication subsystem and operable to store and retrieve data in the memory subsystem, to execute instructions stored in the memory subsystem, and to cause the communication subsystem to transmit and receive data over the communication network; and

update server management and allocation program code comprising instructions executable by the processing subsystem and stored in the memory subsystem, the instructions operable to cause the processing subsystem to transmit resource requirements data for an update

to a mobile device over the communication network, receive update request data transmitted from a mobile device over the communication network in response to the transmitted resource requirements data, and transmit update data back to a mobile device over the communication system in response to the update request data.

5           37.     The system of claim 36, wherein the update server management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to receive stored mobile device data transmitted from a mobile device, store the stored mobile device data in the memory subsystem, receive a stored mobile device data request transmitted  
10 from a mobile device, and transmit to a mobile device the stored mobile device data.

          38.     The system of claim 37, wherein the update server management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to receive stored mobile device data transmitted from a mobile device, store the stored mobile  
15 device data in the memory subsystem, and execute update computations to create updated mobile device data.

          39.     The system of claim 38, wherein the update server management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem  
20 to receive an updated mobile device data request transmitted from a mobile device, and transmit from the updated mobile device data to a mobile device.

40. The system of claim 37, wherein the update server management and allocation program code comprises further instructions executable by the processing subsystem and stored in the memory subsystem, the further instructions operable to cause the processing subsystem to receive a stored mobile device data request transmitted from a mobile device and transmit the stored mobile device data to a mobile device.

41. The system of claim 36, further comprising:

a mobile communication device comprising a processing subsystem, a memory subsystem, and a communication subsystem, the processing subsystem coupled to the memory subsystem and communication subsystem and operable to store and retrieve data in the memory subsystem, to execute instructions stored in the memory subsystem, and to cause the communication subsystem to transmit and receive data over the communication network; and

mobile device update management and allocation program code comprising instructions executable by the processing subsystem and stored in the memory subsystem, the instructions operable to cause the processing subsystem to receive resource requirements data for an update transmitted over the communication network from update management server, determine whether the mobile device has associated update resources to meet the resource requirements, allocate update resources in the mobile device if the mobile device does not have associated update resources to meet the resource requirements, and transmit over the communication network the update request data requesting update data from the update management server.

42. A system for updating a mobile device, comprising:

means for receiving at a mobile device resource requirements data for an update;

means for determining whether the mobile device has associated update resources to meet the resource requirements;

means for allocating update resources to the mobile device if the mobile device does not have associated update resources to meet the resource requirements;

means for transmitting from the mobile device update request data requesting update data; and

5 means for receiving at the mobile device the update data in response to the transmitted update request data.

43. The system of claim 42, further comprising:

means for transmitting from to a mobile device the resource requirements data for an update;

10 means for receiving the update request transmitted from the mobile device in response to the transmitted resource requirements data; and

means for transmitting from to the mobile device the update data in response to the update request.

44. A mobile communication device, comprising:

15 a processing subsystem, a memory subsystem, and a communication subsystem, the processing subsystem coupled to the memory subsystem and communication subsystem and operable to store and retrieve data in the memory subsystem, to execute instructions stored in the memory subsystem, and to cause the communication subsystem to transmit and receive data over a communication network; and

20 executable update management and allocation program code stored in the memory subsystem and comprising instructions operable to cause the mobile device to perform the method of claim 1 when executed by the processing subsystem.

45. A mobile communication device, comprising:

a processing subsystem, a memory subsystem, and a communication subsystem, the processing subsystem coupled to the memory subsystem and communication subsystem and operable to store and retrieve data in the memory subsystem, to execute instructions stored in the memory subsystem, and to cause the communication subsystem to transmit and receive data over  
5 a communication network; and

executable update management and allocation program code stored in the memory subsystem and comprising instructions operable to cause the mobile device to receive memory requirements data for an update transmitted over the communication network, determine whether the mobile device has associated memory resources to meet the memory requirements, allocate  
10 memory resources in the mobile device if the mobile device does not have associated memory resources to meet the memory requirements, and transmit over the communication network update request data requesting update data from an update management computing device upon determining that associated memory resources may be allocated.

46. The mobile device of claim 45, wherein the update management and allocation  
15 program code comprises further instructions that cause the mobile device to identify stored mobile device data stored in the mobile device memory that may be purged to make available the memory resources, determine whether the identified stored mobile device data is stored on a remote storage device operable to communicate with the mobile device over the communication network, and upon determining that the identified stored mobile device data is not stored on the  
20 remote storage device, transmit the identified stored mobile device data to the remote storage device for storage and purging the identified stored mobile device data from the mobile device memory subsystem.



47. The mobile device of claim 46, wherein the update management and allocation program code comprises further instructions that cause the mobile device to update the mobile device with update data received in response to the update data request, transmit a request from the mobile device to the remote storage device for transmission of the identified stored mobile device data from the remote storage device to the mobile device, receive the identified stored mobile device data from the remote storage device in response to the transmitted request, and store the identified stored mobile device data in the mobile device memory.